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| APPLICATION NO.  | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO.            | CONFIRMATION NO. |
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| 09/384,932   | 08/26/1999  | CLAUS TONDERING      | 09918/024001                   | 8504             |
| 20985  | 7590        | 02/02/2006           |                                |                  |
| FISH & RICHARDSON, PC<br>P.O. BOX 1022<br>MINNEAPOLIS, MN 55440-1022 |             |                      | EXAMINER<br>AVELLINO, JOSEPH E |                  |
|  |             |                      | ART UNIT                       | PAPER NUMBER     |
|  |             |                      | 2143                           |                  |
| DATE MAILED: 02/02/2006  |             |                      |                                |                  |

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                                |                                  |  |
|------------------------------|--------------------------------|----------------------------------|--|
| <b>Office Action Summary</b> | Application No.<br>09/384,932  | Applicant(s)<br>TONDERING, CLAUS |  |
|                              | Examiner<br>Joseph E. Avellino | Art Unit<br>2143                 |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 12 December 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-23 and 25-38 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-23, 25-38 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

1. Claims 1-23, and 25-38 are pending in this examination.

#### ***Continued Examination Under 37 CFR 1.114***

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on December 12, 2005 has been entered.

#### ***Claim Rejections - 35 USC § 103***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1-11, 13, 17-21, 25-26, 29-30, 33-34, and 36-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hauser et al. (USPN 5,889,956) (cited as pertinent prior art in previous Office Action) (hereinafter Hauser) in view of Nicola et al. ("Fast Simulation of the Leaky Bucket Algorithm" Proceedings of the 1994 Winter simulation Conferences Society for Computer Simulation International (c) 1994) (hereinafter Nicola).

3. Referring to independent claims 1, 10, 17, and 18, (e.g. exemplary claim 1), Hauser discloses a method comprising:

representing, by a current resource usage value (i.e. actual use), a total amount of a resource that is managed by a software tool and is currently in use by both a first process and a second process (col. 5, lines 30-35; col. 8, lines 40-62);

for each of the first and second processes, specifying a maximum current usage level that is associated with the process (i.e. maximum allowed for the Programming Department and a second maximum allowed value for the Hardware Department) (Figure 1, ref. 22, 24; Figure 3, ref. 306, 308);

in response to a request by one of the processes for additional use of the resource, allowing the process to make the requested additional use and increasing the current usage value by the amount of requested additional use, provided that the requested additional use plus the current usage would not exceed the maximum current usage level (i.e. Max\_allowed) associated with the requesting process (Figure 3, ref. 302-312; col. 8, line 62 to col. 9, line 48).

Hauser does not disclose that the total resource usage is decreased using a preset amount per unit of time. However it is well known and expected in the art that a system has the ability to have a resource usage decreased using a preset amount per unit of time. In support of this statement Nicola discloses a leaky bucket algorithm wherein tokens are generated at a fixed interval (i.e. preset amount per unit of time) (p. 266, col. 2, ¶ 2). It would be obvious to a person of ordinary skill in the art at the time

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the invention was made to combine the teaching of Nicola with Hauser to effectively police a QoS algorithm thereby increasing the fairness of the system and allowing starved processes access to the resource as supported by Nicola p. 266, col. 2, ¶ 1).

4. Referring to claim 2, Hauser discloses the resource is memory space (Figure 5; col. 6, lines 26-65).

5. Referring to claim 3, Hauser discloses the network comprises an embedded computer system (col. 6, lines 25-43).

6. Referring to claim 4, Hauser discloses the network operates in a real-time networking environment (col. 3, lines 45-65).

7. Referring to claim 5, Hauser does not specifically disclose the system is modeled as a leaky bucket. In analogous art, Nicola discloses that the system is a leaky bucket system (p. 266, col. 2, ¶ 2). It would be obvious to a person of ordinary skill in the art at the time the invention was made to combine the teaching of Nicola with Hauser to effectively police a QoS algorithm thereby increasing the fairness of the system and allowing starved processes access to the resource as supported by Nicola p. 266, col. 2, ¶ 1).

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8. Referring to claim 6, Hauser does not specifically disclose determining a priority of a resource and allocating the resource based on the priority, however it is well known that resources can be prioritized (i.e. preferred servers over mirror sites, high speed pipeline over a telephone modem connection, etc.) therefore it would have been obvious to provide a prioritized resource schedule to allow for higher prioritized resources to be used before lower resources, which might be more easily subjected to congestion than the preferred resources.

9. Referring to claim 7, Hauser discloses adjusting a maximum current usage value (col. 9, lines 15-60).

10. Referring to claim 8, Hauser discloses notifying the process that additional use of the resource is allowed when the requested additional use plus the current usage value would not exceed the maximum current usage level associated with the requesting process (col. 5, lines 7-47).

11. Referring to claim 9, Hauser discloses notifying the requesting process comprises sending a message to a network address associated with the requesting process (it is inherent that a client on a network as a network address and that any message sent to the client is sent to the address of the client) of the process (col. 5, lines 7-47).

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12. Claims 11, 13, and 19-21 are rejected for similar reasons as stated above.

13. Referring to claim 25, Hauser discloses a method of managing usage in a resource as stated in the claims above. Hauser does not disclose determining a priority for a process for a resource and allocating the resource based on the priority. However it is well known in the art that higher priority processes (i.e. interrupt threads in a computer, master computer nodes in a network, etc.) get preference over lower priority processes (i.e. garbage collection, other menial system processes, etc.) for resource contention since they are of higher importance. Therefore it would have been obvious to one of ordinary skill in the art to provide for prioritizing resource allocation based on the priority of the processes to allow for higher priority processes not to be impeded by a lower priority process.

14. Referring to claim 29, Hauser discloses the invention substantively as described in claim 1. Hauser does not specifically state if increasing the current usage exceeds a maximum, waiting until such time as by increasing will not exceed a maximum. Nicola discloses in the standard leaky bucket algorithm that if there are not tokens left in the bank, then the transaction is either queued in a buffer or lost (p. 226, col. 2, ¶ 2). It would be obvious to a person of ordinary skill in the art at the time the invention was made to combine the teaching of Nicola with Hauser to effectively police a QoS algorithm thereby increasing the fairness of the system and allowing starved processes access to the resource as supported by Nicola p. 266, col. 2, ¶ 1).

15. Referring to claim 30, Hauser discloses invention substantively as described in claim 1. Hauser does not state the decreasing of the current usage value is independent of the amount of use of the resource by the process. Nicola discloses in the standard leaky bucket algorithm that the decreasing is performed at fixed intervals (regardless of the amount of usage by the processes (p. 226, col. 2, ¶ 2). It would be obvious to a person of ordinary skill in the art at the time the invention was made to combine the teaching of Nicola with Hauser to effectively police a QoS algorithm thereby increasing the fairness of the system and allowing starved processes access to the resource as supported by Nicola p. 266, col. 2, ¶ 1).

16. Claims 33-34, and 36-38 are rejected for similar reasons as stated above.

Claims 12, 14, 22, 23, 31, 32, and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hauser in view of Nicola and further in view of Lowe (USPN 6,125,396).

17. Referring to claim 12, Hauser in view of Nicola disclose the invention substantively as described in the claims above. Hauser in view of Nicola do not disclose decrementing the maximum usage level of the software tool in response to the use of the resource associated with the tool by any of the plurality of devices. In analogous art, Lowe discloses decrementing the maximum usage level of the software



tool in response to the use of the resource associated with the tool by any of the plurality of devices (col. 7, line 40 to col. 9, line 9). It would be obvious to a person of ordinary skill in the art at the time the invention was made to combine the teaching of Lowe with Hauser and Nicola since the system of Hauser and Nicola could deny an entity while it is still below its Minimum\_Guaranteed level (i.e. an overallocation of resources) (col. 9, lines 1-15) and therefore this would lead one of ordinary skill in the art to search for other resource allocation systems, eventually finding Lowe and its teaching of using credits for overallocation of resources to a client (e.g. abstract).

18. Referring to claim 14, Hauser in view of Nicola disclose the invention substantively as described in the claims above. Hauser in view of Nicola do not disclose incrementing the maximum usage level to correspond to the usage level. In analogous art, Lowe further discloses incrementing the maximum usage level (assigned rate) to at least correspond to the specified usage level (i.e. usage level available on the resource) (e.g. abstract). It would be obvious to a person of ordinary skill in the art at the time the invention was made to combine the teaching of Lowe with Hauser and Nicola since the system of Hauser and Nicola could deny an entity while it is still below its Minimum\_Guaranteed level (i.e. an overallocation of resources) (col. 9, lines 1-15) and therefore this would lead one of ordinary skill in the art to search for other resource allocation systems, eventually finding Lowe and its teaching of using credits for overallocation of resources to a client (e.g. abstract).

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19. Referring to claim 22, Hauser in view of Nicola disclose the invention substantively as described in the claims above. Hauser in view of Nicola do not disclose the available amount of credit comprises a difference between a maximum resource usage allocated to the at least two processes and the amount of resource currently used by the at least two processes. In analogous art, Lowe discloses the available amount of credit comprises a difference between a maximum resource usage allocated to the at least two processes and the amount of resource currently used by the at least two processes (col. 8, lines 40-45). It would be obvious to a person of ordinary skill in the art at the time the invention was made to combine the teaching of Lowe with Hauser and Nicola since the system of Hauser and Nicola could deny an entity while it is still below its Minimum\_Guaranteed level (i.e. an overallocation of resources) (col. 9, lines 1-15) and therefore this would lead one of ordinary skill in the art to search for other resource allocation systems, eventually finding Lowe and its teaching of using credits for overallocation of resources to a client (e.g. abstract).

20. Referring to claim 23, Hauser in view of Nicola disclose the invention substantively as described in the claims above. Hauser in view of Nicola do not disclose the available amount of credit increases per unit of time by an estimated value of the resource that becomes available per unit of time. In analogous art, Lowe discloses the available amount of credit increases per unit of time by an estimated value of the resource that becomes available per unit of time (col. 8, lines 17-23). It would be obvious to a person of ordinary skill in the art at the time the invention was made to

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combine the teaching of Lowe with Hauser and Nicola since the system of Hauser and Nicola could deny an entity while it is still below its Minimum\_Guaranteed level (i.e. an overallocation of resources) (col. 9, lines 1-15) and therefore this would lead one of ordinary skill in the art to search for other resource allocation systems, eventually finding Lowe and its teaching of using credits for overallocation of resources to a client (e.g. abstract).

21. Referring to claim 31, Hauser in view of Nicola disclose the invention substantively as described in the claims above. Hauser in view of Nicola do not disclose different software tools on different devices that are associated with a common resource have different specified maximum current usage levels. In analogous art, Lowe discloses different software tools on different devices that are associated with a common resource have different specified maximum current usage levels (i.e. different software tools for non-real time clients and real-time clients, since real-time clients have a reserve amount fixed at zero) (col. 6, lines 53-67). It would be obvious to a person of ordinary skill in the art at the time the invention was made to combine the teaching of Lowe with Hauser and Nicola since the system of Hauser and Nicola could deny an entity while it is still below its Minimum\_Guaranteed level (i.e. an overallocation of resources) (col. 9, lines 1-15) and therefore this would lead one of ordinary skill in the art to search for other resource allocation systems, eventually finding Lowe and its teaching of using credits for overallocation of resources to a client (e.g. abstract).

22. Claims 31, 32, and 35, are rejected for similar reasons as stated above.

Claims 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hauser in view of Nicola in view of Lowe in view of Harrington et al. (USPN 6,289,012) (hereinafter Harrington).

23. Referring to claim 15, Hauser in view of Nicola in view of Lowe discloses disclose the method of managing a plurality of resources as stated in the claims above.

Although Hauser discloses allowing a resource to exceed its assigned rate, Hauser does not specifically state overriding the usage level to allow a device access to one of the plurality of resources. Harrington discloses when a pre-allocated memory element is not available, the list will override the reallocated space and the list "grows to add additional memory elements to the List" (col. 15, lines 25-30). It would be obvious to a person of ordinary skill in the art at the time the invention was made to combine the teaching of Harrington with Hauser, Nicola, and Lowe for more efficient data downloads and data resiliency as supported in Harrington (col. 3, lines 18-34).

24. Referring to claim 16, Hauser in view of Nicola in view of Lowe disclose the method of managing a plurality of resources as stated in the claims above. Hauser in view of Nicola in view of Lowe does not disclose destroying the software tool when requested. Harrington further discloses destroying the software tool in response to a request from one of the devices (col. 16, lines 52-56 and Figure 26). It would be

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obvious to a person of ordinary skill in the art at the time the invention was made to combine the teaching of Harrington with Hauser, Nicola and Loweto allow for efficient memory management and to facilitate garbage collection in the system.

Claims 27 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hauser in view of Nicola in view of Ho et al. (USPN 6,578,082) (hereinafter Ho).

25. Hauser in view of Nicola discloses a method of managing usage of resources as stated in the claims above. Hauser in view of Nicola does not specifically disclose the preset amount represents an estimated amount of resource which comes available per unit of time. Ho discloses the preset amount represents an estimated amount of resource which comes available per unit of time (col. 7, lines 18-41). It would be obvious to a person of ordinary skill in the art at the time the invention was made to combine the teaching of Hauser and Nicola with Ho to increase efficiency of the system by not calculating the actual resource availability, rather the estimated value, thereby reducing processing overhead and increasing throughput.

### ***Response to Amendment***

26. Applicant's arguments dated April 4, 2005 have been fully considered but are not persuasive.

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27. In the remarks, Applicant argues, in substance, that (1) Hauser does not disclose the gate current usage value represents a total amount of a resource that is currently in use by a first process and a second process.

28. As to point (1) Applicant is incorrect. Applicant must realize that the “actual use” value of the “Engineering” entity is a combination of the “actual use” values of the “Programming” entity, and “Hardware” entity. Therefore the “actual use” value of the Engineering layer is, in fact, a value that represents the current usage of a resource by a first and second process. The Examiner never stated that the “first maximum value” of any layer corresponds to the “aggregate current usage value”. Rather this value corresponds to the “actual use” level of the entity (col. 4, line 53 to col. 5, line 7). By this rationale, the rejection is maintained.

### ***Conclusion***

29. The Examiner further **strongly** recommends an amendment to put claims 7-9 and clarifying language for the limitation “decreasing the aggregate current usage value over time”, as was indicated in the previous Office Action as allowable subject matter. Applicant is strongly encouraged to comply with this request in order to pass this case to allowance.

30. This is a Request for Continued Examination. All claims are drawn to the same invention claimed in the earlier application and could have been finally rejected on the

grounds and art of record in the next Office action if they had been entered in the earlier application. Accordingly, **THIS ACTION IS MADE FINAL** even though it is a first action in this case. See MPEP § 706.07(b). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no, however, event will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph E. Avellino whose telephone number is (571) 272-3905. The examiner can normally be reached on Monday-Friday 7:00-4:00.

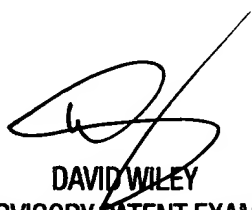
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David A. Wiley can be reached on (571) 272-3923. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



JEA  
January 24, 2006



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